

**Claim Listing**

1-113. (Canceled)

114. (Previously Presented) A bead array comprising a planar assembly of encoded, oligonucleotide-bearing beads in a designated area on a substrate, wherein said encoded beads comprise a plurality of unique capture oligonucleotides and have a diameter of from 2 microns to 20 microns.

115. (Previously Presented) A bead array comprising a planar assembly of encoded, oligonucleotide-bearing beads in a designated area on a substrate, wherein said encoded beads comprise a plurality of unique capture oligonucleotides and have a diameter of up to 10 microns, and wherein differently-encoded beads are randomly distributed in said assembly.

116. (Previously Presented) A bead array comprising a planar assembly of encoded, oligonucleotide-bearing beads in a designated area on a substrate, wherein said encoded beads comprise a plurality of unique capture oligonucleotides and have a diameter of about 1 micron and wherein differently-encoded beads are randomly distributed in said assembly.

117. (Previously Presented) A bead array comprising a planar assembly of encoded, oligonucleotide-bearing beads, wherein said beads (a) are encoded by oligonucleotides, (b) comprise a plurality of unique capture oligonucleotides, (c) have a range of diameters of (i) from 2 microns to 20 microns or (ii) from several hundred Angstroms up to 10 microns, wherein said beads are and wherein differently-encoded beads are randomly distributed within the planar assembly, and wherein said planar assembly is located in a designated area on a substrate.

118. (Previously Presented) The bead array of claim 117, wherein said capture oligonucleotides are capable of annealing to an at least partially complementary analyte.

119. (Previously Presented) The bead array of claim 117, wherein the analyte is a cDNA derived from mRNA by reverse transcription.

120. (Previously Presented) The bead array of claim 117, wherein the analyte is an amplicon derived from genomic DNA by amplification.

121. (Previously Presented) The bead array of any of claims 114-116 or 117, wherein said designated area comprises an area of predetermined shape and/or size.

122. (Previously Presented) The bead array of any of claims 114-116 or 117, wherein said beads are assembled into an array of a predetermined geometry.

123. (Previously Presented) The bead array of claim 122, wherein said predetermined geometry is hexagonal.

124. (Previously Presented) The bead array of any of claims 114-116 or 117, wherein said beads are assembled into a plurality of designated areas.

125. (Previously Presented) The bead array of claim 121, wherein said beads are assembled into a plurality of designated areas.

126. (Previously Presented) The bead array of claim 122, wherein said beads are assembled into a plurality of designated areas.

127. (Previously Presented) The bead array of claim 123, wherein said beads are assembled into a plurality of designated areas.

128. (Previously Presented) The bead array of any of claims 114-116 or 117, wherein said substrate is a silicon substrate.

129. (Previously Presented) The bead array of claim 128, wherein said silicon substrate comprises a Si/SiO<sub>x</sub> chip.

130. (Previously Presented) The bead array of claim 128, wherein the designated area on said silicon substrate is defined by lithographic patterning.

131. (Previously Presented) The bead array of claim 128, wherein the designated area on said silicon substrate is defined by chemical patterning.

132. (Previously Presented) The bead array of any of claims 114-116 or 117, wherein said planar assembly comprises a single layer of beads.

133. (Previously Presented) The bead array of any of claims 114-116 or 117, wherein said beads are comprised of latex.

134. (Previously Presented) The bead array of any of claims 114-116 or 117, wherein said beads are comprised of silica.

135. (Previously Presented) The bead array of any of claims 114-116 or 117, wherein said beads are comprised of oxide particles.

136. (Previously Presented) The bead array of any of claims 114-116 or 117, wherein said beads are comprised of polystyrene.

137. (Previously Presented) The bead array of any of claims 114-116 or 117, wherein said beads are chemically encoded.

138. (Previously Presented) The bead array of any of claims 114-116 or 117, wherein said beads are oligonucleotide-encoded.

139. (Previously Presented) The bead array of any of claims 114-116 or 117, wherein said capture oligonucleotides are designed to hybridize to cDNA.

140. (Previously Presented) The bead array of claim 114-116 or 117, wherein said beads have a diameter of about 2 microns.

141. (Previously Presented) An array of arrays comprising an array of a plurality of bead arrays according to any of claims 114-116 or 117.

142. (Previously Presented) The array of arrays according to claim 141, wherein each of said bead arrays is in a separate designated area on a substrate.